

## WHAT IS COUNCIL DOING?

The Council's Pest Management Unit conducts regular monitoring and surveillance programs of the larval Biting Midge populations throughout canal systems and waterways on the Gold Coast. When Biting Midge populations are in a susceptible stage, the Pest Management Unit conducts control programs, using a boat fitted with a boom spray to treat the inter tidal beaches.

Additionally, Council conducts adult Biting Midge control by misting with the natural insecticide Pyrethrum in areas of the City, to reduce the Biting Midge numbers to an acceptable level. Council's policy is to conduct Pyrethrum misting programs based upon residents' requests.

You can help Council by, if possible, catching some of the midges whilst they are actually biting. This can be done by getting a small jar of Methylated Spirits and moistening your finger with the metho and placing it on top of the insect and then washing it off your finger into the jar with the metho. Having done this, phone the Pest Management Unit of Council and they will arrange to pick them up for identification of the nuisance species.

You should remember that Biting Midge numbers will increase around the time of the full and new moons. Therefore, it is advisable not to plan outdoor functions that coincide with these major midge emergence times.

## INFORMATION ABOUT MIDGES

Of the 11 species of Biting Midge identified as existing on the Gold Coast, there are four species which are a pest to residents and visitors alike. Each of these species has a different breeding habitat.

**Lasiohelia townsvillensis** is quoted as a species of the rainforest, but it appears in urban situations where rainforest conditions are mimicked by well watered gardens with mulch, compost heaps etc. It usually appears after heavy rains, and early winter rain may lead to an outburst in spring. This species is known to bite all day.

**Culicoides subimmaculatus** breeds in open mangrove areas. It has been noted that emergence of females began two days before half moon, 50% had emerged by half moon plus 2 days, and emergence was completed by half moon plus 4 days. Males emerged in a similar pattern 1.5 to 2 days ahead of the females. The flight range of *Culicoides subimmaculatus* is approximately 400 metres.

Because of its limited flight range and its mangrove swamp habitat, this species is unlikely to cause widespread problems but is more likely to attack fishermen and others who venture into the mangroves as well as residents of estuarine areas such as Currumbin estuary.

**Culicoides molestus** was formerly a species of estuarine areas where it was not classified as a major pest species. With the advent of canal developments, it soon became apparent that man had created an ideal habitat for the propagation of this species. The soft flocculated sand is an ideal place for the female to lay its eggs and the proximity of human and canine populations means that there is a ready supply of blood meals available. Emergence of females begins 3 days before full or new moon, 50% will have emerged the next day and emergence is completed on the day of the full or new moon. Although it is reported that the flight range is only 400 to 500 metres, it has been found much further from any possible breeding place. It has become a major pest of residents in canal estates.

**Culicoides marmoratus** causes problems in the northern parts of the Gold Coast. It is believed that larvae of this species breed in algal covered mud in saltmarshes or below mangroves where the highest spring tides obtrude into the saltmarsh. The eggs are not resistant to desiccation so the breeding area must remain moist. The peak emergence occurs up to 10 days before spring tide peaks. It is also triggered off by periods of intermittent rain. The pest range of this species is believed to be greater than 15 kilometres.

## LIFE CYCLE

Biting Midge eggs are roughly banana shaped, with rounded ends and a surface variously adorned with minute projections. They are rarely encountered in nature and are laid in batches of up to fifty in or near the larval habitat.

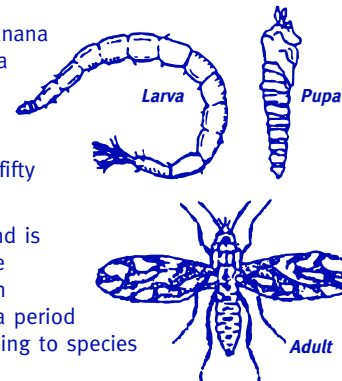
A tiny worm like larva hatches and is the main feeding stage of the life cycle. It grows from first to fourth instar, moulting each time, over a period of days, weeks or months according to species and environmental factors.

The pupal stage looks rather like a tiny legless blunt nosed lobster which breathes air through a pair of small respiratory trumpets at the head end. It does not feed during this stage.

The adults emerge from the pupal pelt after some days or weeks; if this is cyclical (eg related to tides) it will take place over several days with the males about a day ahead of the females.

## FOR FURTHER INFORMATION

If you have any further queries regarding Biting Midges please contact the Gold Coast City Council's Pest Management Unit between the hours of 7.30am and 3.30pm Monday to Friday - Phone 5581 7914.



# Living with on the MIDGES GOLD COAST



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## FACTS ABOUT MIDGES

Biting Midges are not sandflies; They are present on all continents except Antarctica; The adults are about 1 – 2 mm long, much smaller than the related mosquito; Generation time – ie life cycle from egg to adult, is probably not less than eight weeks; Midges do not breed in the grass, trees or in soil or sand in the garden. They only harbour in these areas; They are not known to be vectors of any human disease in Australia; In overcast humid weather, they are known to bite all day and night.

## WHEN THEY'RE BITING

Only the female bites: She needs a blood meal to fertilise her eggs. They are known as pool feeders because they use their proboscis like a saw to create a tiny hole in the skin into which a pool of blood can flow. Saliva is injected into the pool to help the flow of blood. It is this saliva that causes the allergic reaction and itching. Pest range varies with:

- The species, from less than 100m for some through a range of distances up to 15km.
- The size and productivity of the breeding area.
- Moisture and shelter beyond the breeding area.
- Land form and prevailing winds.

## USEFUL TIPS

Personal reaction to bites varies from a slight redness which disappears in half an hour or less, to severe inflammation. If you react rapidly and the swellings are small, you are reasonably immune so treatment may not be needed. Swelling and itch will soon go away.

For these less severe cases, the following tips may help reduce the effects of bites:

- **A hot bath may provide temporary relief;**
- **Anti itching creams or lotions from the chemist are quite effective. Do not apply them when the skin is broken;**
- **Some insect repellents also give relief to the bite, providing the individual's skin is not sensitive to the repellent.**

However, if you react hours or days later to a bite, whether you felt it or not, your immunity is poor and you are likely to be more severely affected. If your reaction is very severe, see your doctor. It has been observed that Vitamin B<sub>1</sub> (Thiamine Hydrochloride) taken over a period of more than 30 days before exposure to midges, can reduce the severity of some people's reaction to bites. However, this is not true of everyone and you should consult your doctor before taking any vitamins.

## PERSONAL PROTECTION

You can take a big step towards living with midges if you avail yourself of some personal protection.

Midges prefer humid overcast conditions with minimal air movement.

Anything you can do to reduce humidity, increase light and air movement will make your house and garden less attractive to midges. Closely mown lawns, sparse vegetation around your house and minimal surface water in the garden will decrease humidity, increase air movement so as to minimise the resting places for midges. Also avoid gardening or watering in the afternoon and early morning.

Biting Midges can penetrate ordinary flyscreens.

During peak infestations, midges have been known to enter houses looking for blood meals. Increase air movement in the house by using electric fans can effectively create an area unsuitable for Biting Midges as their activity reduces in wind speeds over 6-8km/hr. Spraying residual (surface) insecticide on your flyscreens will help deter midges from entering your home. Burning mosquito coils inside can also reduce numbers.

Most insect repellents are effective against midges and should be used whenever you are outside the house. For those who find repellents irritating, an equal part mixture of baby oil, Dettol and Eucalyptus oil is useful.

Long sleeve shorts and long trousers made of closely woven materials give good protection. When gardening, a hat and gloves are also a big help.

## REDUCING MIDGE ACTIVITY IN YOUR YARD

The key to controlling adult Biting Midges in your immediate area is understanding some of the midges' habitats. Being such small insects, they are prone to desiccation in the heat of the day, therefore they must find a cool, shady area to avoid the sun. They do this by harbouring on the underside of leaves of the shrubs and plants in your garden. These areas can be treated by applying a fine spray or mist of insecticide to kill midges which come in contact with the insecticide. Re-apply the insecticide after heavy rain or when midge activity increases.

## CHEMICAL CONTROL TIPS

Various formulations of the natural insecticide, pyrethrum, are available from most plant nurseries and hardware stores. Pyrethrum has little residual capacity, so applications may be needed on a regular (weekly) basis while midges are causing a problem, particularly over the summer period.

Other chemicals suitable include some of the more common garden sprays such as Fenthion and, for a longer lasting effect, Permethrin.

## ORGANIC INSECTICIDES

Due to increased awareness of environmental problems in the community, many residents are now reluctant to use chemicals in their gardens. Some organic insecticides can be made up and applied by the resident. These will be capable of killing the adult midges however, there is no residual after effect and repeated applications may be necessary. These insecticides should not be poisonous to mammals.

### SOME USEFUL ORGANIC INSECTICIDE FORMULATIONS ARE:

#### Garlic Spray

- 85g unpeeled garlic
- 2 tablespoons mineral oil
- 600ml water and 7g of soap dissolved in solution
- mix solution and place in trigger sprayer.

#### Derris Spray

- 120g soap in 4.5 litres of water solution
- mix in 60g of derris powder (from garden suppliers)
- mix additional 4.5 litres of water
- dilute entire mixture in 12 litres of water and place in trigger sprayer.

## ELECTRONIC INSECT KILLERS

Electronic Bug Zappers etc are devices which attract insects with an Ultra Violet light, then kill them with an electric charge. While such devices are known to be effective against nocturnal insects such as mosquitoes they have only limited use in controlling Biting Midges which are mainly active in daylight hours. At such times, the attractant properties of the UV light in the device are in competition with naturally occurring UV rays in sunlight.

## OUTDOOR REPELLENTS

While engaged in outdoor activities such as gardening or barbecues during the midges peak feeding periods, aromatic oils with repellent properties can be burned in Polynesian style bamboo lamp burners placed upwind of the activity. Paraffin oil or perfumed lamp oil can be mixed with either Citronella or Lavender oil can be used in a similar manner, they are available at most health food outlets.

